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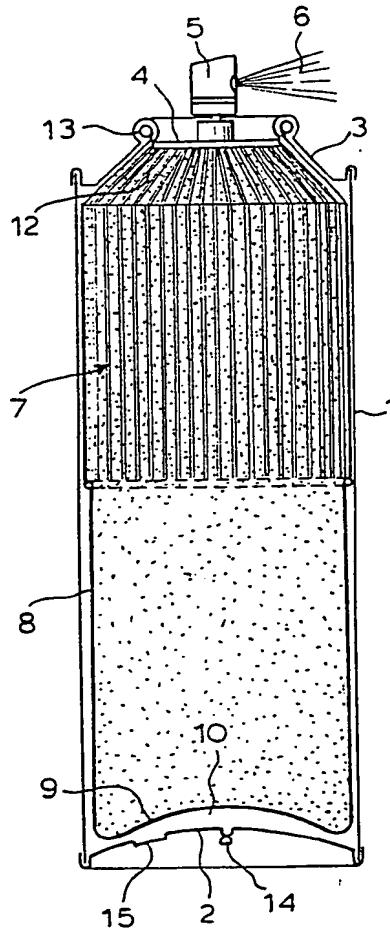
P. A. Sanders "Principles of Aerosol Technology" 1970
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(58) Field of search

F1R
Selected US specifications from IPC sub-class B65D

(54) Aerosols

(57) An air freshener or equivalent aerosol canister has an internal bag for the aerosol material. The bag has a comparatively rigid upper half (7) stiffened by vertical ribs into which the more flexible lower half (8) is forced by compressed gas (10) as the jet material becomes used up. To reduce risk of an explosion when accidentally subjected to an unacceptable temperature, a safety valve (14 or 15) is mounted on the casing.



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The drawings originally filed were informal and the print here reproduced is taken from a later filed formal copy.

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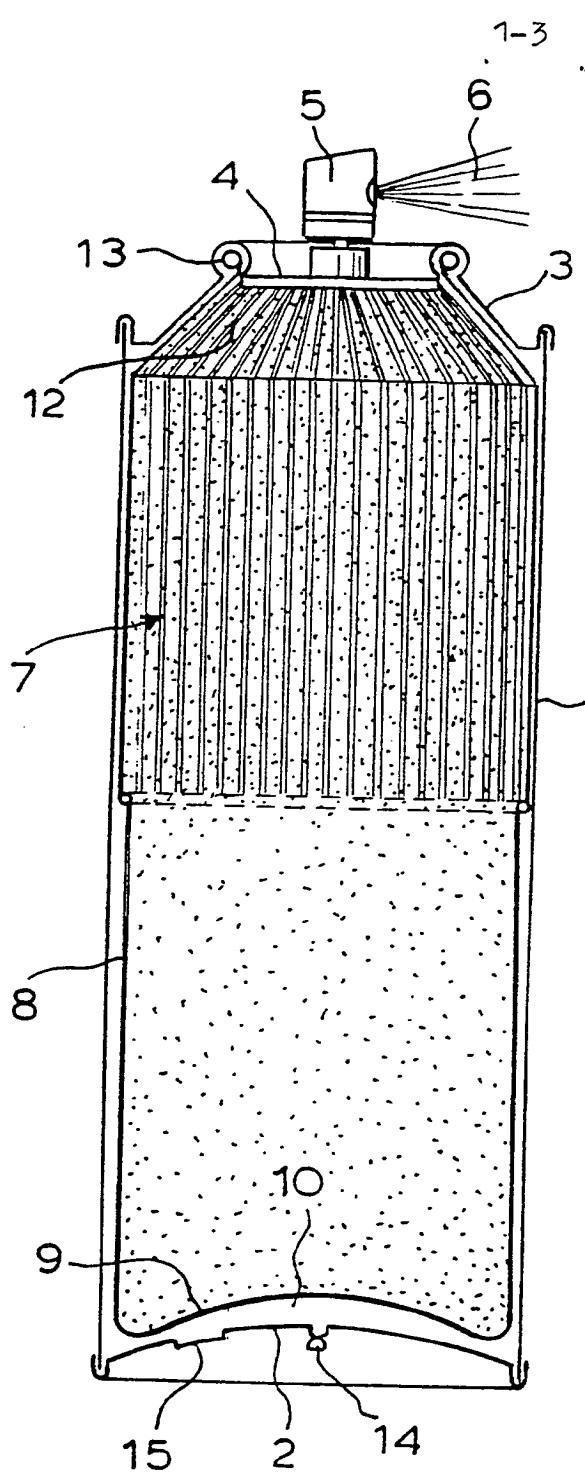


FIG. 1

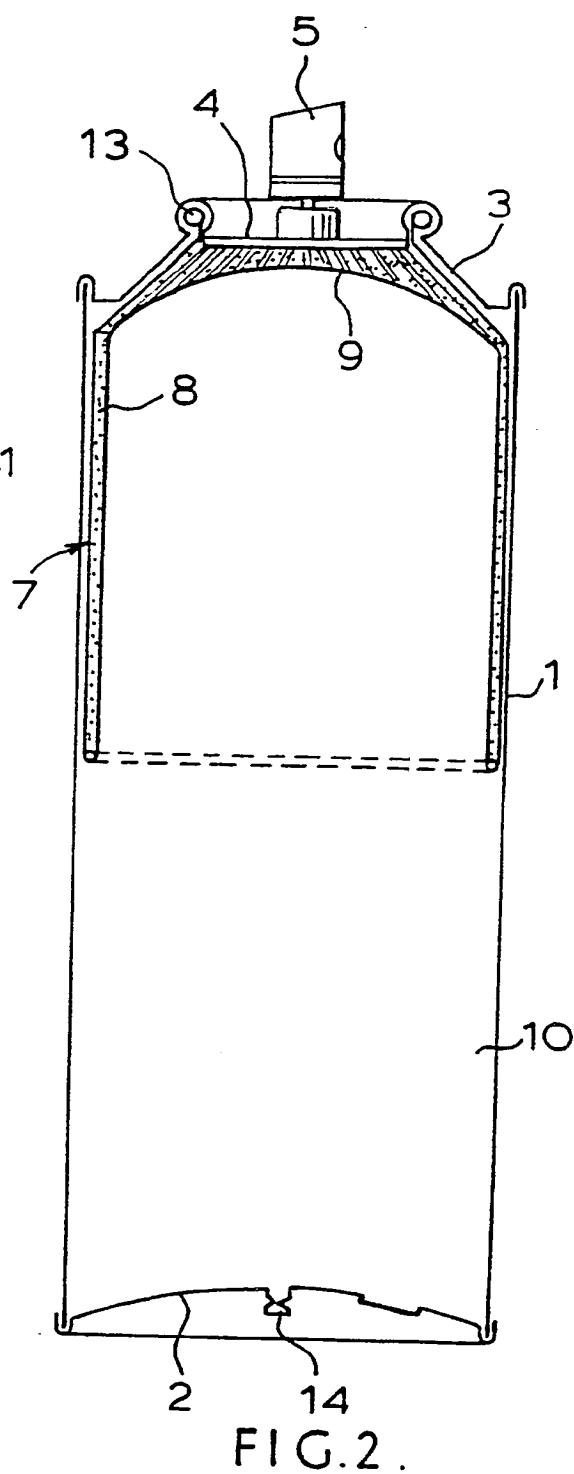


FIG. 2.

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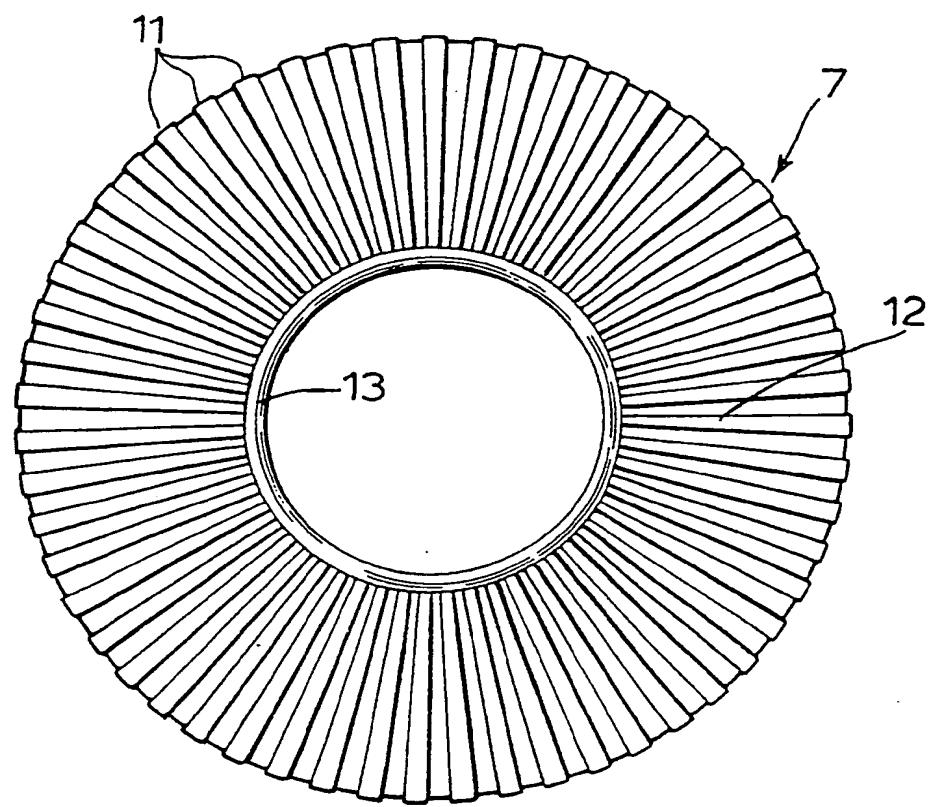


FIG. 3.

ORIGINAL

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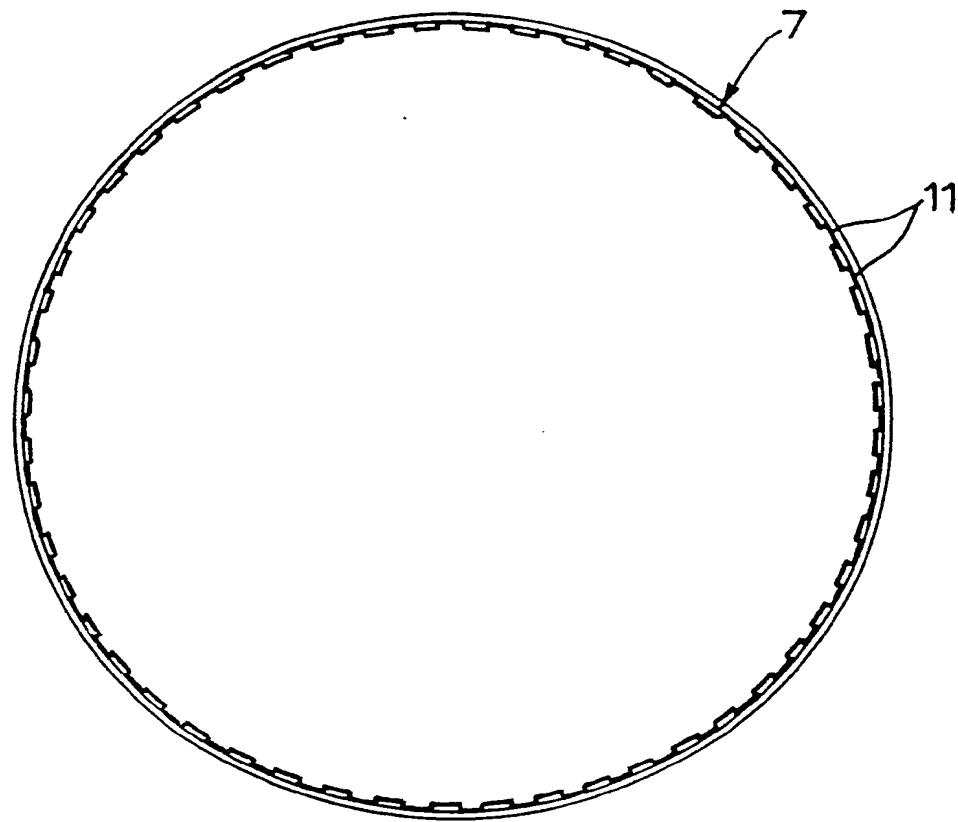


FIG. 4.

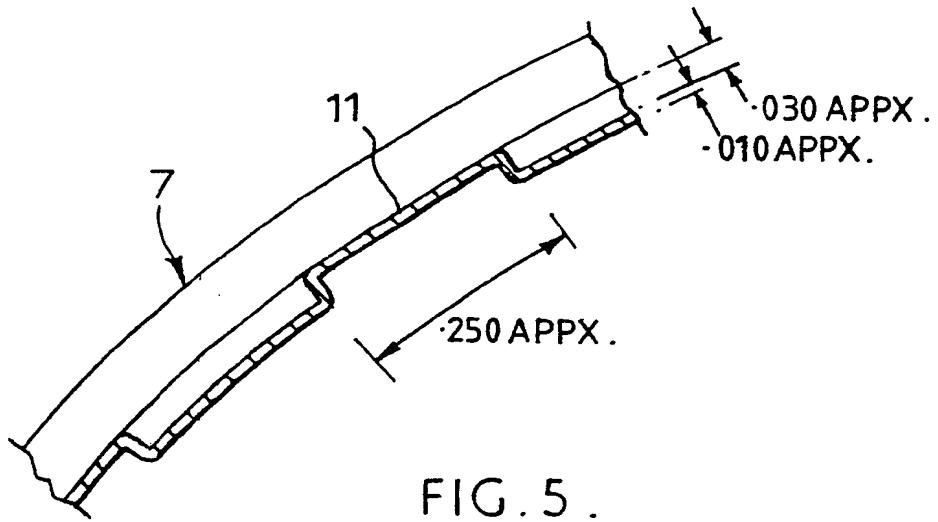


FIG. 5.

SPECIFICATION

Aerosol canisters

5 This invention relates to aerosol canisters and particularly to dry air fresheners but it is to be understood that the invention is not limited to these fresheners.

Air fresheners may contain over 90% butane gas 10 with the result that there have been a number of explosions strong enough to cause structural damage to the buildings in which they occurred. It is a principal object of the present invention, therefore, to provide means whereby these risks can be 15 reduced.

According to the present invention, an aerosol canister comprises a casing furnished at one end with a valve for delivering an aerosol jet material received from a collapsible bag within the casing 20 when the bag is under pressure, means being interposed between the casing and bag for subjecting the bag to such pressure continuously during the useful life of the canister and the bag being arranged to fold up under the said pressure as 25 the aerosol jet material is discharged to an extent corresponding to the amount of material discharged from the bag. Thus, using a bag to separate the aerosol material from the propellant enables various means of propellant to be used other than dangerous 30 gases and allows the propellant, if this is a compressed gas, to escape but not the aerosol material when under unacceptable pressure due to an unacceptable temperature rise.

When the propellant means consist of compressed 35 air or other compressed gas it is very advantageous to furnish the casing with a safety valve to enable the gas to escape if excess pressure arises.

Very conveniently the bag may have a cylindrical body with a comparatively rigid end formed with 40 longitudinal ribs and the remainder of substantially the same length as the comparatively rigid end so that when the remainder has become fully folded into the comparatively rigid end all the aerosol jet material is excluded.

45 In order that the invention may be clearly understood and readily carried into effect, an aerosol canister in accordance therewith will now be described, by way of example, with reference to the accompanying drawings, in which:-

50 *Figure 1* is a vertical section of an aerosol canister when filled with a product to be dispensed as an aerosol;

Figure 2 is a vertical section similar to *Figure 1* showing the canister after all the product has been 55 dispensed;

Figure 3 is a plan of a diaphragm bag contained in the canister of Figures 1 and 2;

Figure 4 is a horizontal section through the bag of Figure 3; and

60 *Figure 5* is a section on a greatly enlarged scale of a portion of the wall of the bag of Figures 3 and 4.

Referring to *Figure 1*, the canister comprises a casing consisting of a cylindrical metal body 1 closed at the bottom by a concave metal base 2 and at the

65 top by a frusto-conical ring 3 encircling a central disc

4 carrying the usual central finger actuated valve 5 which is depressed to emit laterally an aerosol spray 6.

Within the canister is a bag comprising a 70 comparatively thick-walled top half 7 and a comparatively thin-walled bottom half 8. The bottom of the bag is closed by a thin diaphragm 9 which when the bag is filled with liquid is separated from the canister base 2 by a propellant 10 which may be 75 compressed air or other compressed gas or even a compressed spring.

The top half 7 of the bag is stiffened by vertical ribs 11 each 0.030 inches (0.762 mm) deep and 0.250 inches (6.35 mm) wide approximately. The thickness 80 of the ribbed material is approximately 0.010 inches (0.254 mm). The top half 7 of the bag is gathered into a frusto-conical shape 12 that fits into the ring 3 of the casing and terminates in an O-ring 13 that is crimped into the top of the casing so that the bag is secured at 85 the top of the canister.

When the canister is in use pressure on the finger actuated valve enables the propellant 10 to discharge some of the liquid or liquid gas in the bag as an aerosol as a result of the compressed gas forcing the 90 base diaphragm 9 of the bag towards the top of the canister. Ultimately, when the whole contents has been used, the diaphragm 9 reaches the top of the canister as shown in *Figure 2* with the thin-walled bottom half 8 of the bag folded upwards into the 95 thick-walled upper half 7 of the bag and substantially the whole volume of the casing filled with the propellant.

The concave metal base 2 is furnished with a miniature relief valve or a crimped gas inlet valve 100 used for introducing the propellant into the canister but sufficiently weak after being crimped to permit the escape of gas under excess pressure. In addition or alternatively, a rupture impression 15 (*Figure 1*) may be provided to serve as a relief valve.

105 Various modifications may be made to the embodiment described above without departing from the invention. For example, it is envisaged that the invention may be usefully applied in pressurised containers other than aerosol canisters, such as beer barrels.

CLAIMS

1. An aerosol canister comprising a casing 115 furnished at one end with a valve for delivering an aerosol jet material received from a collapsible bag within the casing when the bag is under pressure, means being interposed between the casing and bag for subjecting the bag to such pressure continuously

120 during the useful life of the canister and the bag being arranged to fold up under the said pressure as the aerosol jet material is discharged to an extent corresponding to the amount of material discharged from the bag.

125 2. An aerosol canister according to Claim 1, in which the bag has an end adjacent the valve which is comparatively rigid in relation to the remainder of the bag whereby the remainder of the bag is caused by the pressure means to fold into the comparatively rigid end as the jet material is discharged.

3. An aerosol canister according to Claim 2, in which the bag has a cylindrical body with the comparatively rigid end formed with longitudinal ribs and the remainder of substantially the same length as the comparatively rigid end so that when the remainder is fully folded into the comparatively rigid end all the aerosol jet material is excluded.
4. An aerosol canister according to any one of the preceding claims, in which the pressure means consist of compressed air or other compressed gas and the casing is furnished with a safety valve set to enable the gas to escape in the event of excess pressure arising in the canister as a result of an external cause while the aerosol jet material is retained in the bag.
5. An aerosol canister substantially as hereinbefore described with reference to the accompanying drawings.

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